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AUTHOR Freed, Jann E.; And Others
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ABSTRACT

This study looked at how Total Quality Management (TQM) is being adopted in institutions of higher education. A questionnaire was developed seeking information on: (1) leadership of the TQM movement and timing of events; (2) the training, educating, and informing of employees; (3) specific areas using TQM and the specific statistical tools being used; and (4) benefits realized and frustrations experienced in the adoption process. About 50 percent of 414 institutions responded to the survey. Preliminary results indicated that 77 percent of respondents indicated that TQM is being adopted on their campuses, of which 85 percent had adopted TQM in 1990 or later. Within institutions, the support staff most frequently receive training (90 percent), followed by administration (85 percent), and faculty (68 percent). The areas most likely to be using TQM were top-level administration, registration, physical plant, admission, and accounting. The top ranked statistical tools used in the TQM process were flow charts, cause-and-effect diagrams, and nominal group process. In business and engineering schools a majority of respondents indicated that TQM is being taught but far fewer reported that TQM is being practiced. Improved communication and customer satisfaction were cited by 65 percent of respondents as key benefits of TQM while perceptions of TQM as a fad and time consuming were cited as major frustrations. (Contains 24 references.) (JB)

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Total Quality Management on Campus: Pipe Dream or New Paradigm?

Jann E. Freed, Ph.D.
Associate Professor
Management
Central College
812 University St.
Pella, IA 50219
(515) 628-5168
FAX (515) 628-5316

Marie Klugman, Ph.D.
Assistant Professor
Statistics
Drake University
25th & University St.
Des Moines, IA 50311
(515) 271-2994
FAX (515) 271-4518

Jonathan D. Fife, Ed.D.
Professor
Higher Education Administration
George Washington University
One Dupont Circle
Washington, DC 20036-1183
(202) 296-2597
FAX (202) 296-8376

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Running head: TOTAL QUALITY MANAGEMENT

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for Management Research, Policy Analysis, and Planning

This paper was presented at the Thirty-Fourth Annual Forum of the Association for Institutional Research held at The New Orleans Marriott, New Orleans, Louisiana, May 29, 1994 - June 1, 1994. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Jean Endo
Editor
Forum Publications

Abstract

Total Quality Management (TQM) in higher education is often advocated as the management practice for positively positioning institutions in the future. With a trend of rising costs and declining enrollments for many institutions, TQM is explained as the "answer". This paper reports the results of a national survey of institutions and business and engineering schools identified as having adopted TQM. The findings are reported in four categories: the leadership of the TQM movement and the timing of the events; how people a. rained, educated, and informed about TQM; the specific areas using TQM and statistical tools being used; and the benefits and frustrations realized through the management practice.

Total Quality Management on Campus: Pipe Dream or New Paradigm?

Introduction

American colleges and universities are in a period of major environmental changes. Increasing levels of tuition, declining demographics of traditional college-aged students, public demand for more accountability and increased productivity have made administrators in higher education experts in crisis management. "There is a major erosion of confidence in the leadership and the quality of higher education in the country. Respect for college and universities is gravely in danger" (Cornesky, et al. 1991, p.1). Public institutions will find their survival threatened by the rising costs and declining enrollments (Bosner, 1992; Seymour, 1992).

Rather than implementing a "quick fix", now is the time to adopt a long range quality philosophy. Seymour (1992) believes colleges and universities have created infrastructures that require students and resources, and this has been the focus of institutional planning. Instead of focusing on quality improvement, institutions have been reacting to the most demanding problems. The need exists to integrate the quality movement with the strategic planning process.

Levine (1990) adamantly states that higher education cannot continue as it is. Since institutions are not operating in a period of growth, "higher education will have to live with relatively less" (p.4). Levine predicts that the future will be based on long-term health and effectiveness in addition to the trust and level of confidence from the general public. Every institution

must address the questions of quality and costs.

Success stories of TQM in industry have stimulated government and nonprofit organizations to adopt TQM (Hansen, 1993). Increasingly, academic institutions have been using TQM principles to positively position themselves in the future (Miller, 1991; Sherr and Teeter, 1991; Spanbauer, 1992). Seymour (1991, 1992) advocates that institutions need to adopt the philosophy and tools of Total Quality Management because it is a better way to manage higher education. According to Seymour (1992), TQM has made a difference in organizations around the world. "It cannot be dismissed as another management fad. It is not academic whimsy. It is too well-grounded in a scientific approach to problem solving, and it has been tested, scrutinized, and revised in thousands of organizations over a period of more than three decades. Bottom line: It works" (p.ix).

TQM Principles

The power of TQM, according to its proponents, lies in its principles. The principles are fundamentally a paradigm shift in how organizations are managed. Total Quality Management can be described in numerous ways, but according to the authorities (Crosby, 1979; Deming, 1986; Juran, 1989; Marchese, 1991; Schmidt and Finnigan, 1992) it is a personal philosophy and an organizational culture that utilizes scientific outcomes measurement and teamwork to achieve the mission of the organization. In summary, the eight principles most mentioned by the authorities include:

•**Cultural change.** The philosophies, values, assumptions, beliefs,

expectations, attitudes, and norms that weave an institution together should focus on quality and the continuous improvement of quality.

•**Mission or outcomes driven.** Outcomes are defined by the expectations of all the stakeholders. Outcomes must be in harmony with the mission and values of the institution. Outcomes must be defined in measurable terms.

•**Systems oriented.** All actions are part of interactive and interdependent systems. A change in one part of the institution has an impact on the other parts of the institution.

•**Decision by fact.** The real issues can not be found until the problem is clearly understood through the systematic gathering of data.

•**Empowerment of people.** Individuals are responsible for the achievement of the mission and must be aware of how their position and actions relate to the mission. All parties involved in a process should be involved in decisions concerning that process. The closer a person is to the actual issue, the more involved they should be in the decision making process. Collaboration and teamwork produces better results than individual efforts.

•**Education and training.** Most system errors are caused by a lack of training. Everyone in the institution needs to be involved in continuous training.

•**Change is constant.** Procedures should be in place to continuously evaluate the impact of change and to seek ways to make the changes compatible with the mission. The goal of change is to meet or exceed

the expectations of stakeholders.

•**Leadership.** Top leadership must be willing to constantly articulate and reward the implementation of the quality principles.

External Support

The business community believes so strongly in the principles and philosophy of TQM that it is forming partnerships with higher education institutions to encourage their pursuit of quality. American Express, Ford, IBM, Motorola, Procter and Gamble, and Xerox sponsor The Total Quality Forum, an annual meeting for academic leaders. This group has established a leadership steering committee that is composed of both the academic and business communities to improve the awareness and implementation of TQM in higher education.

Many universities and colleges are partnering with industry to integrate the TQM principles into courses and curricula as well as into daily operations. The IBM-TQM Partnership With Colleges and Universities is an example of the commitment industry is making to work with higher education to accelerate the teaching, research, and use of quality management practices in college and university operations. The TQM University Challenge sponsored by Motorola, Inc., Proctor and Gamble, Xerox, Milliken, and IBM is aimed at incorporating TQM principles into business and engineering curricula and administrative processes (Horine, Hailey, and Rubach, 1993). Business executives believe that "business and academia have a shared responsibility to learn, to teach, and to practice total

quality management" (Robinson, Poling, Akers, Galvin, Artzt, and Allaire, 1991, p.94).

The accrediting organizations are another source of external support for the implementation of the TQM principles. Beginning with the 1993-94 school year, business schools across the country seeking accreditation will be required to demonstrate to the American Assembly of Collegiate Schools of Business (AACSB) how they use the quality principles to improve curricula, faculty, and administration. Often the quality principles are being used in isolated parts of the institution. In one national survey, several institutions noted that their TQM efforts were not institution-wide but were concentrated in a single site such as the business or engineering school (Horine, Haily, and Rubach, 1993).

Business and engineering schools have more contact with industry than other disciplines within other schools. Business schools are currently offering courses and programs in TQM; engineering schools have been teaching the statistical tools of TQM for decades. These schools often employ people who go back and forth between the college campus and companies making them more comfortable with the language and tools (Seymour, 1991). Therefore, business and engineering schools have often been the leaders in stressing the adoption of TQM (Bateman and Robert, 1993; Hogg and Hogg, 1993; Nielsen, 1993; Seymour, 1991).

According to Ewell (1991), the incentives for change are still too few and predicts the adoption of TQM will continue to be slow until higher education "feels" the crisis. Fortunately, the supporters of TQM believe the

principles will help institutions respond to the changes in advance, to enable them to be proactive rather than reactive. Levine (1990) reminds us that "we in education must recognize that our clock is ticking" (p. 5).

Survey of TQM Institutions and Programs of Study

The higher education literature explains the ideas of and philosophy behind TQM and discusses how it applies to higher education (Chaffee and Sherr, 1992; Sherr and Teeter, 1991). The literature also contains numerous self-reported articles outlining how specific institutions have adopted TQM. Several survey studies have been conducted to determine which colleges and universities are pursuing quality improvement. Other surveys have collected information from institutions known to be practicing total quality in order to monitor the progress (Axland, 1992; Evans, 1992). However, to date, there is a lack of in-depth information that reports what institutions are doing with the TQM principles conducted by people outside the institution.

This study provides a descriptive analysis of how TQM is being adopted in higher education institutions and in business and engineering schools. This study supplements the current literature by surveying the institutions that have been identified as having adopted TQM and presents a comparison of their experiences: why they began their quest for quality improvement, their successes and setbacks. Since some business and engineering schools have been leaders in teaching and the implementation of TQM, examples from business and engineering schools are included. The

basic principles of TQM are commonly divided into three groups: philosophy, management, training, and tools. This study focuses on these groups. The following questions were of particular interest:

- How is TQM being implemented?
- What is the relationship between TQM being taught and TQM being practiced in business and engineering schools?
- How has the management style changed since the adoption of TQM?
- Who is receiving the training?
- Who is conducting the training?
- What have been the results in terms of benefits and frustrations?

Methodology

After reviewing the literature, a questionnaire was developed based primarily on current literature (Chaffee and Sherr, 1992; Marchese, 1991; Sherr and Teeter, 1992; Seymour, 1991, 1992, 1993). The first section asked respondents for background information on their institutional experience with TQM. This included questions about the leadership of the TQM movement and the timing of events. The second section was directed at determining how people are trained, educated, and informed about TQM. The third section asked about the specific administrative and academic areas using TQM. Questions were included about the TQM tools used most frequently. The final section contained questions about the benefits realized and the frustrations experienced because of TQM. Several open-ended questions were included to collect specific examples of TQM.

The survey was pre-tested on people associated with the AAHE Continuous Quality Improvement Project. Modifications were made based on their feedback. The institutions were selected on the basis of three criteria: the institution is included in the AAHE CQI Consortium, the institution was identified in an ERIC publication as practicing TQM, or the institution was listed in the annual survey printed by Quality Progress. If the institution was identified by any one of these sources, the institution was included in the sample.

Contact persons were those who had direct leadership in the TQM process as reported in these publications. The original mailing and follow-up postcard yielded a response rate of 28%. A second questionnaire was mailed which increased the response rate to approximately 50% based on 414 institutions. Seventy-seven percent of the surveys received indicated that TQM is being adopted on campus.

Findings

Section 1 -- The leadership of the TQM movement and the timing of events

The adoption of TQM in institutions of higher education is a rather recent phenomenon. Of the responses received, 85% of the institutions adopted TQM in 1990 or later, 5% of the institutions began implementation in 1994. A combination of external and internal forces was cited as the driving force behind the implementation of TQM by a majority of the institutions (52%), 41% cited only internal forces and 6% cited external forces only.

Initial leadership for the TQM movement most frequently came from the central academic administration by itself or in combination with another area, next most frequently from a specific college or department within the institution, and third most frequently from central business administration. Slightly less than two-thirds of the institutions have a specific implementation plan; 51% of those are internally developed, 12% are externally developed, and 37% are a combination of the two. In most cases, there is one person who currently oversees the implementation of TQM in the institution, although 9% of the institutions responded that there is no one in charge. Of those institutions with someone in charge, most frequently the responsibility of overseeing the implementation is in the hands of a part-time person only whose commitment is 25% or less (57% of the institutions); however, a full-time person is in charge in 24% of the institutions and consultants only are in charge in 8% of the institutions.

Section 2 -- The training, educating, and informing of employees

The literature emphasizes that the success of implementing TQM principles within institutions of higher education depends on how the campus community is trained in the ideas and practices of TQM and is kept updated on specific projects that are being undertaken. If everyone is trained, then there is a common culture within the institution and communication is possible among all the groups within the institution (Marchese, 1991; Miller, 1991; Seymour, 1992; Sherr and Teeter, 1991). Within institutions, the support staff is most frequently receiving training (90%), followed by administration (85%) and then by faculty (68%).

Students also are receiving training in at least 13% of the institutions.

\t fewer than half of the institutions (44%), the staff, the faculty, or consultants are providing the training without the help from other groups. Approximately 54% of the institutions have combinations of two or all three of these groups providing the training. The most common methods used for the training are training sessions and pilot projects; followed by discussion groups, newsletters, and readings; the methods least-used are newspaper articles, special mailings, and brochures. Approximately 55% of the institutions are measuring the effectiveness of the training that is being provided.

Section 3 -- The specific areas using TQM and the specific statistical tools being used

For each of the following administrative areas: top-level administration, registration, physical plant, admission, and accounting, between 37 and 46% of the responding institutions indicated the use of TQM. The response for information technology was lower at 30%. On the academic side, classroom instruction and Business Administration most frequently were indicated as using TQM by slightly less than 40% of the institutions, followed by Engineering (30%). Individual departments, Arts and Sciences, and other colleges were each indicated by approximately 15% of the respondents.

A question on statistical tools was asked to determine which tools are most frequently used in institutions of higher education. The choices presented on the questionnaire are the seven commonly-cited tools of

statistical process control (SPC) plus seven more management-based tools (Cornesky and McCool, 1992). Responders were asked to rank the top three tools used in their institutions; the results, therefore, convey both the frequency of use and the overall importance of specific tools. Flow charts ranked highest by far, followed by cause-and-effect diagrams, nominal group process, and then by affinity diagrams and Pareto diagrams. It is no surprise that the flow chart, cause-and-effect diagram, and nominal group process are the most popular techniques since these tools are easily used and are employed early in the analysis of processes. It is also not surprising that three out of the five most frequently used tools are SPC tools (flow chart, cause-and-effect diagram, and Pareto diagram) since until recently these were the only tools taught in the majority of TQM training sessions. It is surprising that two of the management-based tools (affinity diagrams and nominal group process) are already so popular since they are relatively recent additions to the TQM literature. The order of the remaining tools that were included on the questionnaire is as follows: control chart, operational definition, histogram, force field analysis, relations diagram, systematic diagram, run chart, scenario builder, and scatter diagram. This second group of tools was indicated to be used much less frequently than the first group.

Section 4 -- The benefits realized and frustrations experienced in the adoption process

A comparison of the management style in the institution before TQM was implemented with the current management style indicated a definite

benefit of TQM, only 3% of the persons responding thought their institutions now have a more autocratic style of leadership than earlier while 63% indicated a more collegial style of leadership (34% indicated no change). The mean score before the implementation of TQM was 3.2 and the mean score now is 4.1, on a scale of 1 (indicating autocratic) to 7 (indicating collegial).

Improved communication and improved customer satisfaction are the two key benefits cited by approximately 65% of the respondents; more coordination and increased morale were cited by approximately 50% of the respondents; less re-work and a changed culture were indicated by approximately 30%, improved teaching and decreased costs were indicated by slightly over 20% of the respondents. The major frustration is that persons perceive TQM is a fad (65%), followed by the problem that the implementation of TQM is time-consuming (63%). Slightly fewer than half of the respondents reported impatience and political/turf problems as frustrations at their institutions. No extended commitment from the top and not the right approach for higher education each were indicated by slightly fewer than 40% of the respondents. The perception that no value is added by TQM was cited as a problem by 24% of the respondents and the idea that "success" is measured only in quantitative ways was acknowledged as a problem by approximately 14% of the institutions.

As stated earlier, TQM efforts occasionally have been concentrated in business and engineering programs rather than implemented in entire institutions. Almost 50% of the respondents indicated their institution has

a separate business school in which TQM is currently being taught, but only 50% of these business schools are actually practicing TQM. Approximately 25% of the respondents indicated their institution had a separate engineering school in which TQM is currently being taught and 75% of these engineering schools are practicing TQM. It is obvious that knowing about TQM and teaching the principles and tools of TQM is not the same as an institution or portion of an institution embracing and applying the philosophy and principles.

Conclusions and Ideas for Future Research

Is TQM on campus a pipe dream or new paradigm? According to the preliminary results of this study, it is a management practice that is recently being adopted. Most institutions indicated that the adoption of TQM has been since 1990. Since it is early in the adoption process, it is difficult to know if this will be the paradigm of the future, particularly because a majority of the respondents feel that TQM is a time-consuming process and many people within the institutions perceive it as a fad. It will be important to monitor the progress longitudinally to determine if institutions demonstrate the patience to continue with the practice. These findings were consistent with the results of Seymour's (1991, 1993) work.

Leonard (1986) has stated that to learn is to change and education is a process to change the learner. Central to the educational process is the faculty, yet Seymour (1993) found the faculty to be a major hurdle in the implementation of quality management on the academic side regardless of

type of institution. This study revealed that the faculty receives the least training in the group consisting of support staff and administrators. In business and engineering schools, a majority of the respondents indicated that TQM is being taught while a much smaller percentage specified that TQM is being practiced.

Why is it that in universities and colleges, organizations devoted to learning, that it is so difficult to become "learning organizations"? Why is the faculty often a resistant group; adverse to integrating the principles of TQM in the classroom? According to Seymour (1991), "in our classrooms, we encourage students to examine competing theories, test assumptions, create learning situations, and use critical thinking skills. Perhaps this is the time to apply what we teach to what we do" (p. 28).

Since part of the TQM philosophy is to share information, respondents were asked to forward statements on quality, reports, implementation plans, organization charts before and after implementing TQM, and other publications produced that would help to explain their TQM experiences and efforts. The results from the survey and collected information will be used to identify case study institutions for further research. The long term goal of this project is to comprehensively analyze institutions that have adopted TQM in order to compare and contrast their experiences. In addition to examining TQM for the entire institution, business and engineering schools will be analyzed since they have been leaders in teaching courses in TQM as part of the curriculum and in teaching the statistical tools.

One component of TQM is benchmarking which is defined as "the search for industry best practices that lead to superior performance" (Camp, 1989, p.12). An end product of this project is to present information from institutions that can be used as benchmarks. The institutions in this study now practice the TQM principles and have experiences that can be used to help other institutions just beginning the TQM journey and institutions struggling with the implementation of TQM.

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